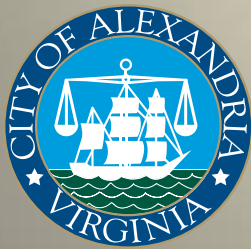


Holmes Run/Chambliss Crossing Study & Stream Bank Stabilization/ Restoration Project

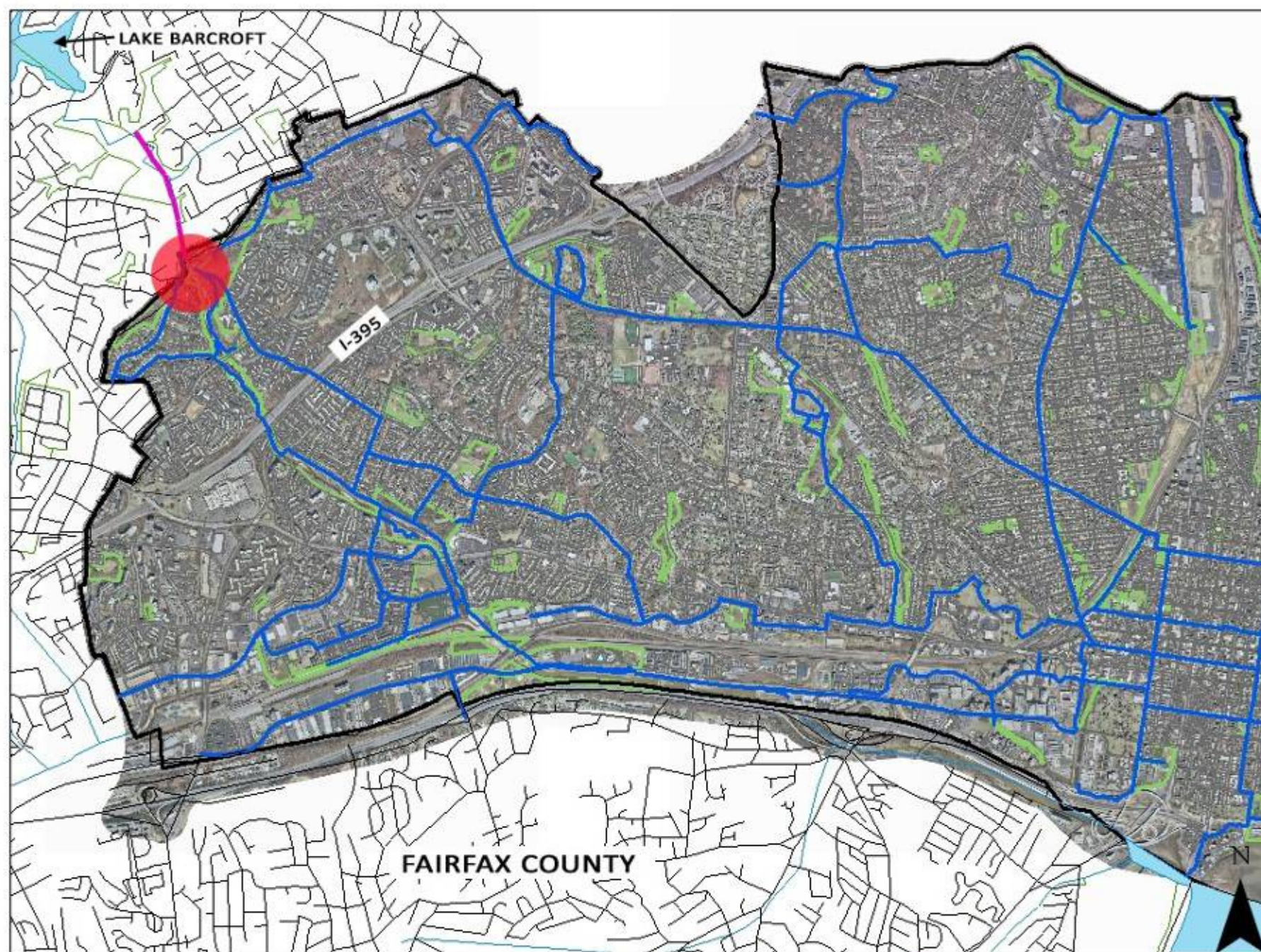
Final Community Meeting



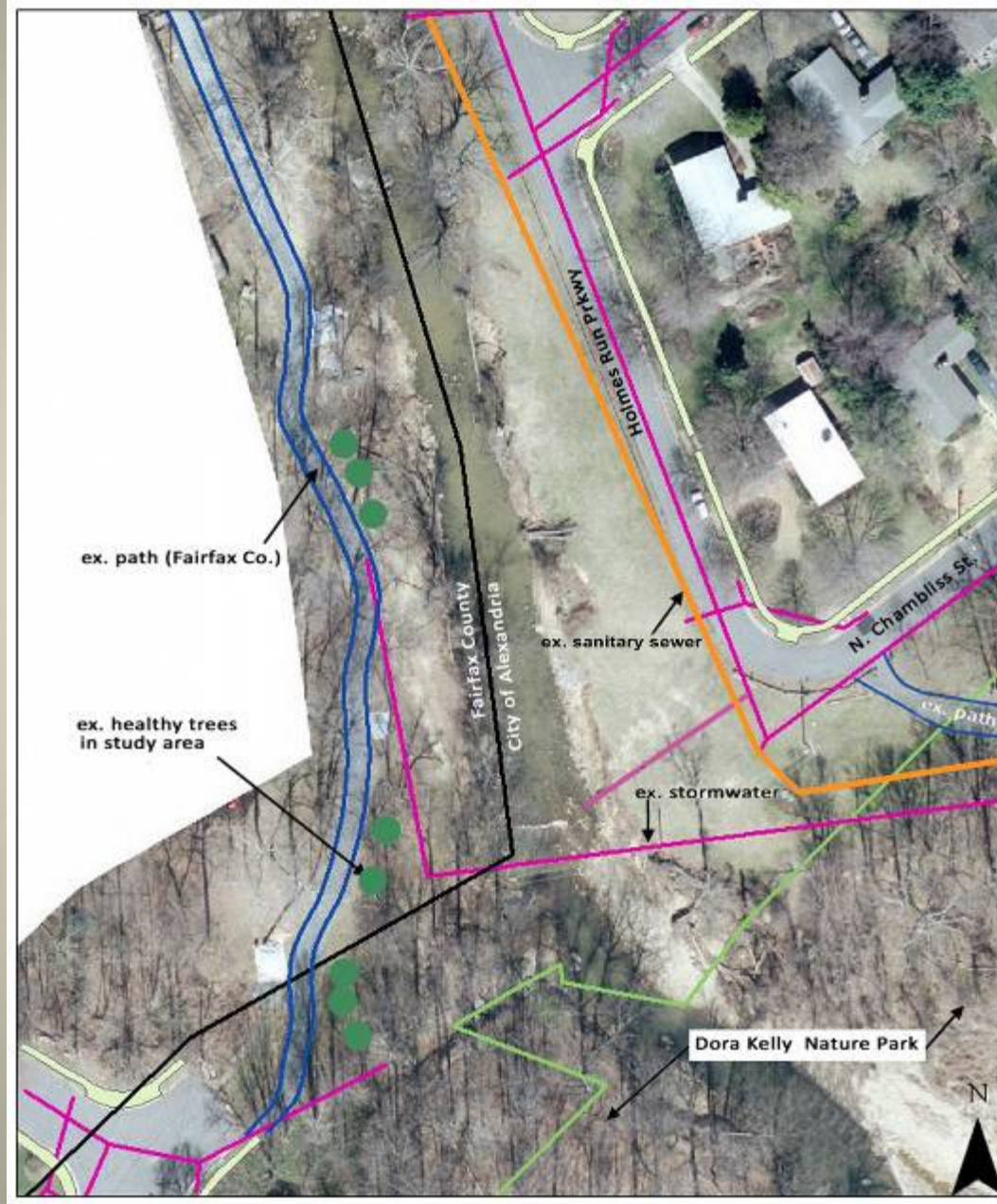
September 24, 2009
Ramsay Recreation Center

Purpose/Agenda

- Project review & update
- Review options for stream bank stabilization/restoration and crossing
- Review city's preferred alternative
- Next steps



Study Boundaries



Project Recap

First Public Meeting (March 2009) included:

- Review of initial project intent (*"To explore a possible bike/pedestrian crossing"*)
- Review of possible crossing types
- Strong community sentiment to include stream bank stabilization/restoration as part of the project

Project Recap

May 28th public meeting:

- Expanded project scope for 350 linear feet of stream bank stabilization/ restoration
- Reviewed crossing options and, using a criteria-based approach, recommended a crossing that is technically feasible and would not create a rise in the flood plain

May 30th public meeting:

- Site visit and “101” session on stream bank restoration/ stabilization
- Established plan to coordinate with Fairfax County

Recent Events

- **Staff/consultants finalize study (modeling & due diligence) and complete coordination with Fairfax County**
- **August- Community petition stressing key points:**
 - 1) Crossing will not contribute to or cause flooding.
 - 2) Remaining open green space be conserved.
 - 3) Adjacent stream bank be restored and stabilized.
- **September- City response:**
 - 1) Protection of existing property shall be maintained (no rise)
 - 2) Crossing is a necessary connection for regional trail network
 - 3) Stream bank will be stabilized and restored
 - 4) Meadow will be maintained to the maximum extent possible while meeting the primary goal of stream bank stabilization

Stream Bank Stabilization/ Restoration

How Erosion Happens...

Erosive Unstable Stream Banks

- Water Quality and Habitat
 - Loss of Property
 - Infrastructure
 - Trees
 - Safety
 - Aesthetics
- Problem Is Getting Worse



How Do We Fix It?

Potential Solutions

-Bank Stabilization

-Hard Engineering

- Rock

- Concrete block

-Bio-engineering

- Stabilize with natural materials and vegetation

- Some Rock Usually Incorporated

-Stream Restoration

- Natural Channel Design

- In-Stream Structures

- “Reference Reach” approach



Why is this location a good candidate?

- To enhance the protection of adjacent real property from flooding events
- To stabilize the stream bank and prevent further erosion
- To increase in-stream habitat and improve water quality
 - To create a safer bank edge
 - To beautify the project area

Stream Bank Stabilization/Restoration

Scenario 1 – “Do Nothing”

- Bank will continue to erode
- Meadow will disappear
- Edge will remain unsafe
- Erosion will continue to introduce pollutants into stream



Stream Bank Stabilization/Restoration

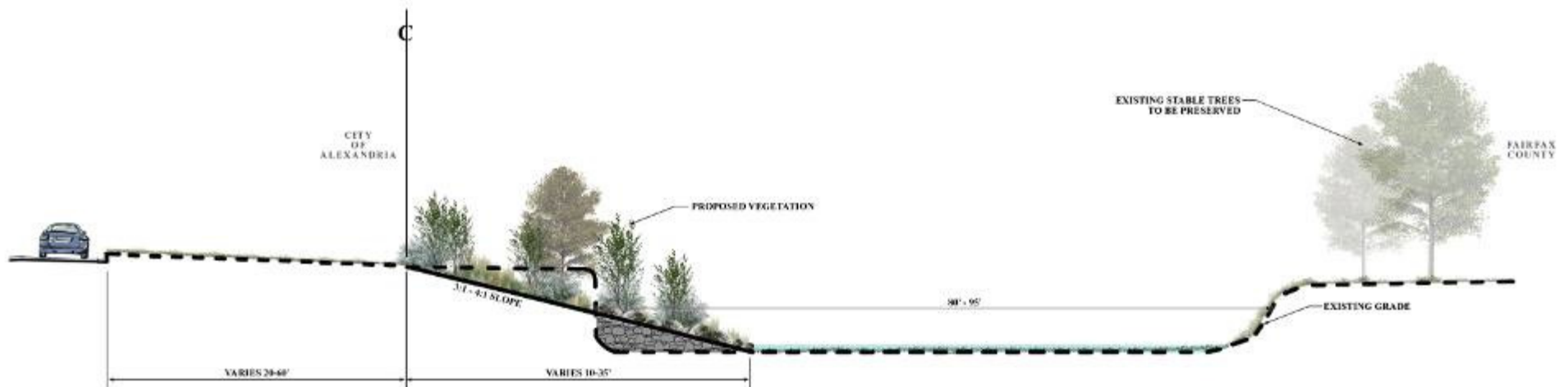
Scenario 2 – Stabilization

- More “engineered” solution
- Will not look as natural as the stabilization option
- Limit of disturbance is less than restoration option



Stream Bank Stabilization/Restoration

Scenario 2 – Stabilization Cross Section Looking Downstream

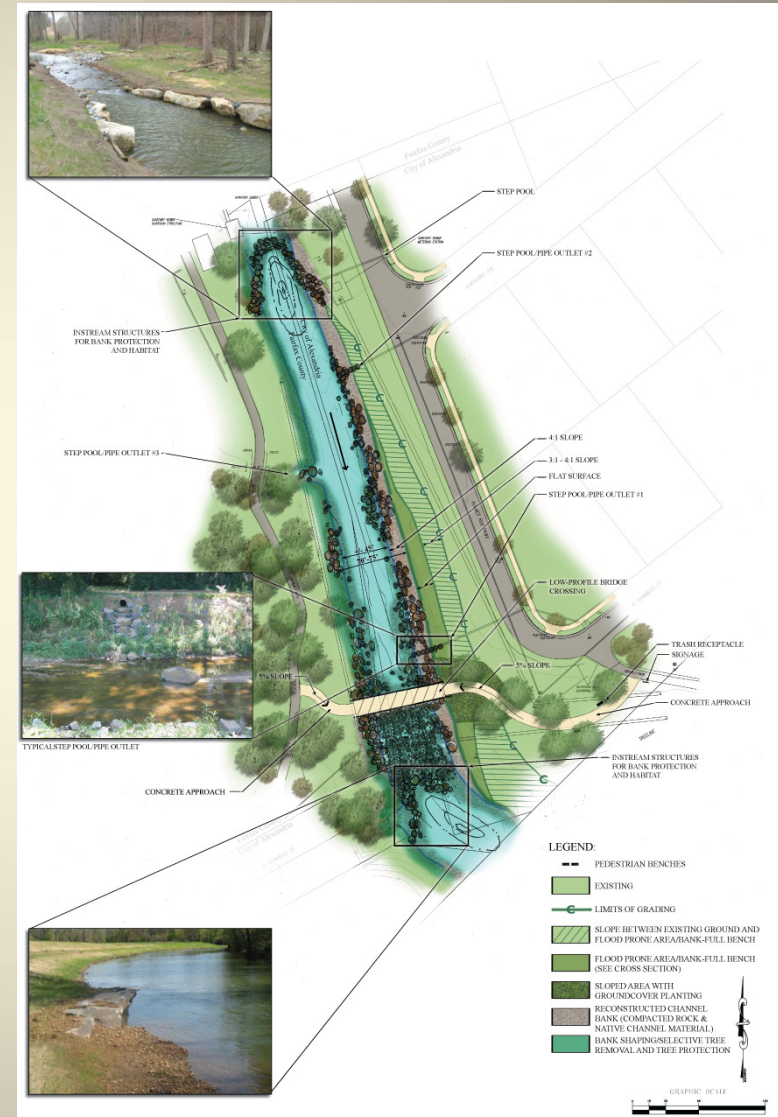


PROPOSED TYPICAL STREAM SECTION (LOOKING DOWNSTREAM)
NOT TO SCALE

Stream Bank Stabilization/Restoration

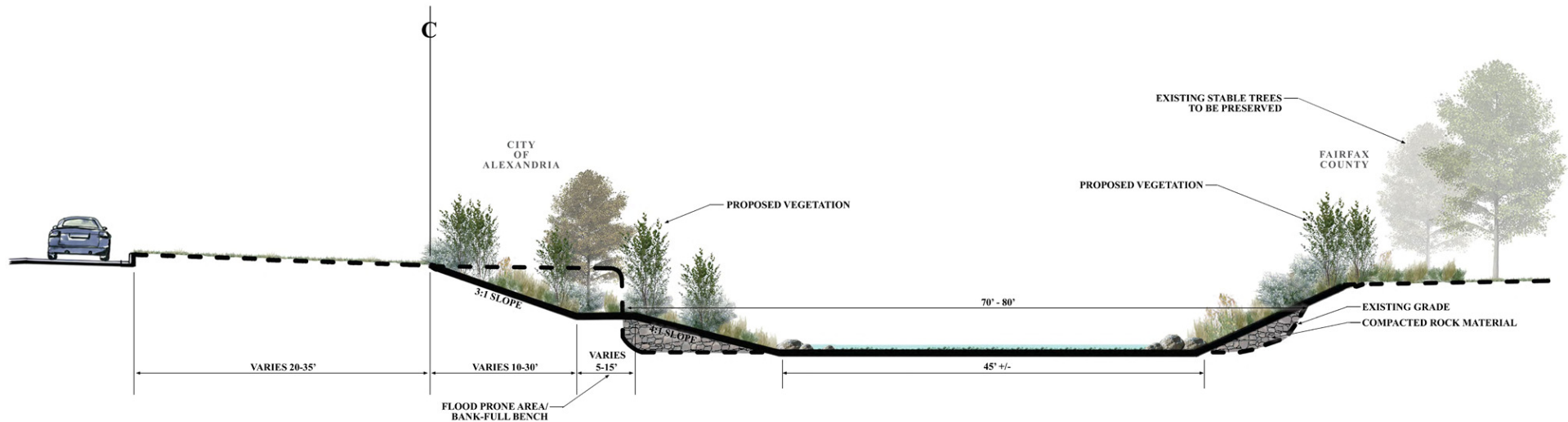
Scenario 3 – Restoration

- More natural solution with a combination of hard materials and planting
- Brings the stream to its natural state
- Limit of disturbance is greater than stabilization option



Stream Bank Stabilization/Restoration

Scenario 3 – Restoration Cross Section Looking Downstream



PROPOSED TYPICAL STREAM SECTION (LOOKING DOWNSTREAM)
NOT TO SCALE

Typical Plant Material for Restoration Option

Keys are:

- Variety
- Use of natives
- Planting Zones
- Develop a natural look



Crossing

Crossing

Recap Options



•Bridge



•Low Profile Crossing



•Fair Weather Crossing

Crossing Design Matrix

| DESIGN MATRIX FOR CROSSING OPTIONS | | | |
|------------------------------------|---|--|--|
| CRITERIA | FAIR WEATHER CROSSING | LOW PROFILE CROSSING | BRIDGE CROSSING |
| HYDRAULIC IMPACT | Has no impact to flood elevations. Least amount of stream flow impact. | Has no impact to flood elevations. Has slightly more impact to stream flow than fair-weather crossing. Also has more potential to gather debris. | A bridge set at the bank elevation causes a rise in the flood plain which is not permissible per FEMA and local regulations. |
| ENVIRONMENTAL IMPACT | Creates the most environmental impact since slab is directly on stream bed. Requires the most significant grading along the approaches to the crossing. | Creates moderate impact since piers are exposed. The base is covered by 1 ft of natural material. Requires moderate grading on the approaches. | Least environmental impact. Avoids stream all together. Bridge footings can be placed along streambanks. Requires minor grading along streambanks. |
| ACCESSIBILITY | Least accessible. Only allows limited crossing during non event times. Will be slippery due to buildup of algae over time. | Moderate accessibility. Will be designed to stay dry for one year events. Will flood during larger events. | Most accessible. Designed to span flood zone. |
| AESTHETICS | Will have the least visual impact along the stream, but moderate visual impact along the approaches. | Will have moderate visual impact along the stream. Can be kept low to hide most of the structure from houses. | Is the most visual option due to height and size of structure. |
| COST | Least expensive. | Moderately expensive. Construction will utilize pre-fabricated pieces. | Most expensive due to high elevation. Cost is not feasible for this project. |

Crossing– Key Points

- Important and necessary to City and Fairfax County for regional trail connectivity

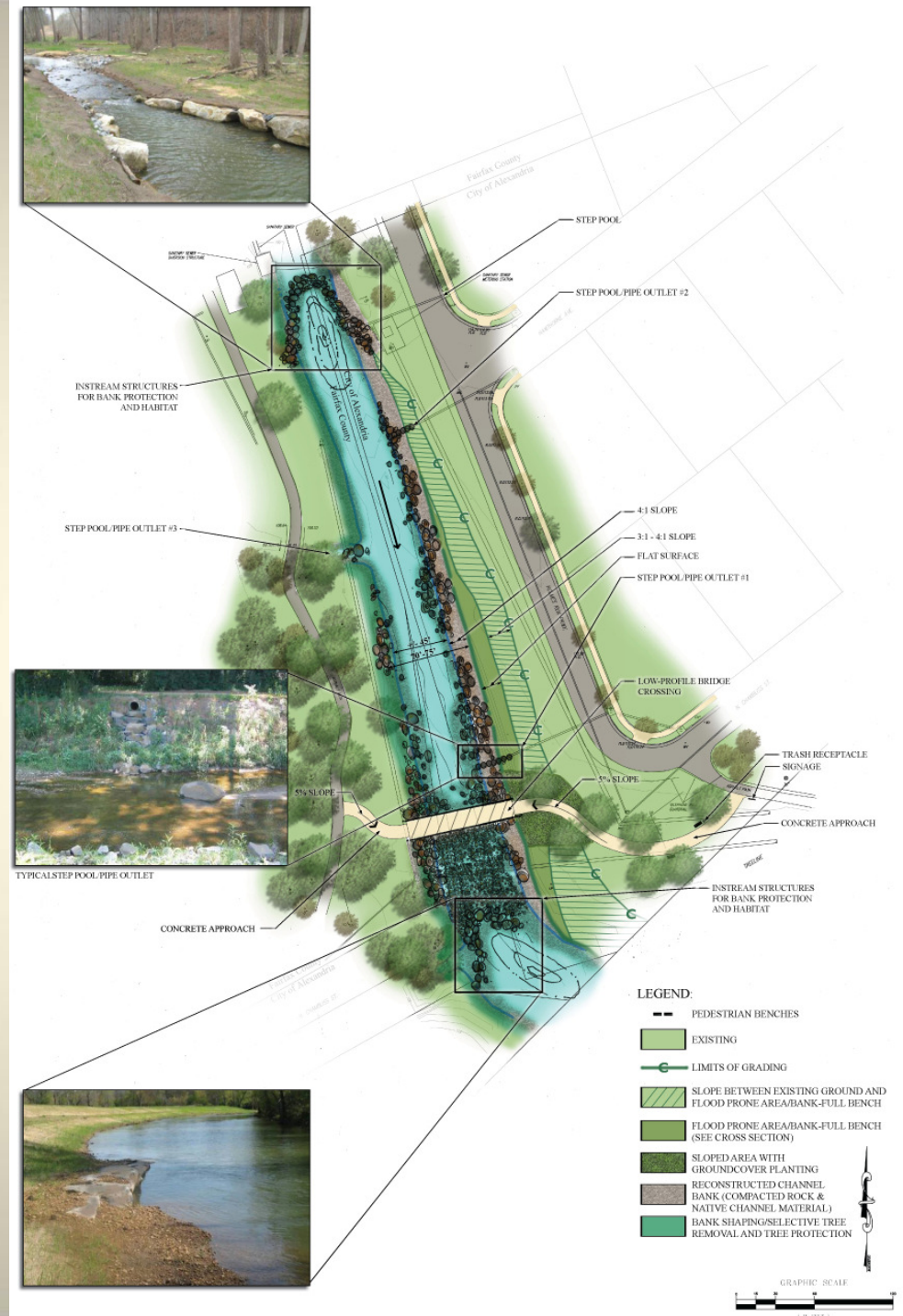
- Low profile option will not create a rise in the flood plain elevation

- Low profile crossing will be designed to limit disturbance to the existing area



Crossing Low Profile Option

- Preferred Option
- Crossing elevation 3-4 ft above low flow
- Designed to not increase flood elevation even if completely blocked by debris
- Designed to limit visual impact to surrounding area.



Crossing

Low Profile Option



TYPICAL LOW-PROFILE BRIDGE CROSSING SECTION (LOOKING DOWNSTREAM)
NOT TO SCALE

Project Schedule...Next Steps

- **September 24**– Final Community Meeting for Study to present preferred option for crossing and stream bank stabilization/ restoration
- **Fall 2009** – Design development & PE (formal engineering) phase of preferred option and begin agency permitting
- **Winter- Spring 2010 (Pending VDOT and federal agency comments):** Finalize permits and spring construction meeting for public to review schedule
 - Project renewed in City CIP
- **Summer 2010** – Bid and Award Construction Contract
- **Spring/Summer 2011** – Construction

Holmes Run/ Chambliss Crossing Study **Public Information Session**

THANK YOU.

